Properties of Sound & The Doppler Effect 101 Video Questions

Learning Target: I can explain the changes in sound waves associated with the Doppler Effect.

1. What type of waves are sound waves? _____
2. Sound waves travel through _____
3. Draw a sound wave and label the compressions and rarefactions of a sound wave below:

4. By looking at the chart for speed of sound, what can you summarize about how sound waves travel?

Material	Temperature °F	Speed of Sound ft/sec
Air	32	1,087
Air	68	1,127
Aluminum	68	16,700
Carbon Dioxide	32	856
Fresh Water	32	4,629
Fresh Water	68	4,805
Hydrogen	32	4,219
Lead	32	4,030
Salt Water	32	4,800
Salt Water	68	4,953
Steel	32	16,410
Steel	68	16,850

5. Why do sound waves travel the way they do in different mediums? _____
_____
6. What determines sound wave intensity? _____
_____
7. What is the relationship between intensity and loudness? _____
8. Draw an example of a sound wave becoming LESS INTENSE over time.

9. What sounds on the intensity chart in the video are at or above threshold of Pain for humans? _____
_____
10. Why do you think they are at this level? _____
_____
11. What is the relationship between frequency and pitch? _____
_____
12. Draw a wave with low frequency and low pitch. Draw a wave with high frequency and high pitch.

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13. What is the Doppler Effect? _____

_____

14. What is the relationship between wavelength, frequency, and distance when talking about the Doppler Effect? _____

_____

_____

15. Draw a picture of the Doppler Effect below

Checks for Understanding: Answer the following questions using your knowledge of properties of sound and the Doppler Effect.

1. Summarize the speed of sound as it travels through different mediums (solid, liquid, gas). _____

_____

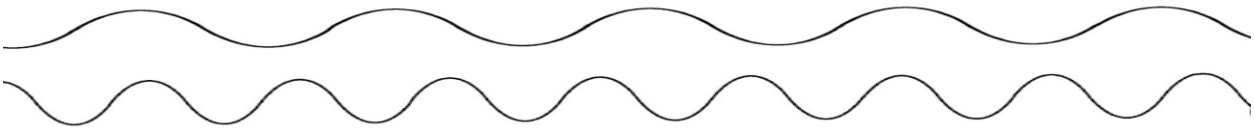
_____

2. What is the relationship between wave intensity and wave loudness? _____

_____

3. Draw an example of a low intensity and low loudness wave, then draw an example of a high intensity and high loudness wave.

4. Which frequency is higher and which frequency is lower in the diagram below? Explain why.



5. What is the relationship between frequency and pitch? _____

_____

6. Explain what the Doppler Effect is and give an example of it. _____

_____

_____

_____

_____

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